

REMARKS

Improper Final Rejection

In the Final Office Action mailed 7 August 2006, the Examiner maintains the §102 and §103 rejections against independent claims 1, 27, and 35, and cites a new rejection against independent claim 53. In particular, the examiner asserts that claim 53 is obvious under §103 in view of Chung (US2002/0151310), Chheda (US6188914), and Bender (US2003/0076795). Because the previous office action only cited §112 rejections against claim 53, the cited rejection constitutes a new rejection against claim 53. As such, the finality of the pending office action is improper and must be withdrawn.

The applicant recognizes that claim 53 was amended in the previous response. However, these amendments simply clarified the claim language to address the §112 rejections. As such, the amendments did not change the scope of claim 53.

The applicant further notes that the previous response made the same amendments to claim 27. As the examiner was able to fully comprehend the scope of claim 27 and cite detailed rejections against claim 27, the applicant submits that the §112 rejections should not have affected the examiner's ability to understand the scope of claim 53. Therefore, the examiner should have submitted any §102 and/or §103 rejections relevant to claim 53 with the previous office action. Because the examiner did not, and because the previously submitted amendments addressed formal matters and did not necessitate the new ground of rejection, the finality of the pending office action is improper and must be withdrawn.

Independent Claim 27

The examiner maintains that Chung anticipates independent claim 27. Claim 27 claims a method of regulating reverse link data rates for access terminals in a first sector based on a

measured reverse link loading of a second sector. In so doing, the method of claim 27 reduces reverse link interference in the second sector caused by the access terminals in the first sector.

Chung describes a reverse link rate control process. Part of the rate control process includes estimating the total interference a base station sees. Chung uses this estimated interference to determine the reverse link capacity of a base station and the data rates it can support. In the previous response, the applicant argued that Chung does not measure the reverse link loading, and therefore, does not regulate reverse link data rates based on the measured reverse link loading. In reply, p. 8 of the pending Final Office Action states “Chung mentions that the total interference from other sectors/cells is β times the total in-cell interference as described in ¶[0049], i.e., the measured reverse link loading of a second sector is nearly proportional to β times the measured total in-cell interference.” The examiner has misread Chung. ¶[0049] of Chung specifically states that the total interference from other sectors/cells, not the reverse link loading, is proportional to β . Further, β denotes “the interference factor from MS’s in other sectors/cells, i.e., the total interference from other sectors/cells is β times the total in-cell interference. For example, $\beta = 0.6$ can be used for a single-sector cell and $\beta = 0.85$ can be used for a sectored cell.” In other words, Chung teaches that β is a simple fixed numeric value that can be used to scale in-cell interference as an approximation of expected other-cell interference. Nothing in Chung teaches or suggests that the reverse link loading of a second sector is nearly proportional to β times the measured total in-cell interference, as asserted by the examiner.

In addition, Chung describes that an upper bound on capacity (N_{\max}), which represents an upper bound on the number of mobile stations in a particular sector, is related to β and the signal to noise ratio d (see equation in ¶[0052] and equation 2). Thus, by Chung’s own definition, N_{\max} does not represent a real-time loading of an operating network. Further, there is nothing in Chung to teach or suggest that N_{\max} is used to regulate or otherwise control the

reverse link data rates. Instead, Chung teaches that N_{\max} serves to simply define an upper limit for a cell or sector's capacity. Such an upper limit is wholly different from the actual live loading of an operating wireless communication network. Thus, Chung does not teach or suggest measuring or even estimating the actual reverse link loading from other sectors or cells, as required by claim 27.

Further, the examiner asserts that R_{\max} , described by Chung in ¶[0052], regulates the reverse data rate (see p. 2 of the FOA). However, ¶[0052] explicitly describes R_{\max} as a maximum data rate that serves as an upper bound for the controlled data rate R . Contrary to the examiner's assertions, nothing in Chung teaches or suggests that R_{\max} actually regulates the actual data rate, nor is it sensible to argue that Chung operates in that manner given Chung's plain contrary explanation. Chung unequivocally does not anticipate the regulating step of independent claim 27.

For at least these reasons, independent claim 27 and dependent claims 28 – 34 are patentably distinct from the cited art. The applicant respectfully requests reconsideration.

Independent Claim 35

The examiner also maintains that Chheda anticipates independent claim 35. Claim 35 claims a method of controlling reverse link throughput in a first sector based on interference estimates for a second sector received at a central processor. Contrastingly, Chheda describes a method and apparatus for improving the link capacity through intelligent antenna design for specific sectors. In rejecting claim 35, the examiner asserts that Chheda teaches "controlling reverse link throughput" because col. 2, ll. 25 – 27 of Chheda teaches estimating the reverse link capacity for a sector. See p. 3 of the FOA. Further, in response to the applicant's previous arguments, the examiner asserts that "At page 18, for claim 35, applicant argues, "Chheda's teaching have nothing to do with controlling reverse link capacity in one sector based on

interference estimates received for another sector.” The applicant never made this statement. Instead, the applicant argued “Contrary to the examiner’s assertions, Chheda has nothing to do with controlling throughput in one sector based on interference estimates associated with another sector” (emphasis added). Based on the examiner’s rejection and the examiner’s misquotation of the applicant, the applicant is concerned that the examiner does not fully appreciate the difference between capacity and throughput. As understood by those skilled in the art and as defined by Chheda, capacity represents the maximum number of users that can be supported in a given sector. Contrastingly, throughput represents the amount of data or information actually being carried by a communication link. Thus, throughput could vary up to some limit that is associated with capacity, but it is nonsensical to argue capacity and throughput are interchangeable. Because Chheda is only concerned with capacity, and because nothing in Chheda teaches or suggests regulating throughput, Chheda does not teach or suggest the invention of claim 35.

The applicant further notes that Chheda uses the calculated reverse link capacity to intelligently design an antenna (see Abstract, Background, and Summary). Because antenna design has nothing to do with the active regulation or control of reverse link throughput, Chheda does not anticipate independent claim 35 for this reason as well.

For at least these reasons, independent claim 35 and dependent claims 36 – 49 are patentably distinct from Chheda. The applicant respectfully requests reconsideration.

Independent Claim 1

In the pending office action, the examiner also maintains that independent claim 1 is obvious in view of Chung and Chheda. First, the applicant notes there is no motivation to combine Chheda with Chung. Chung describes a reverse link rate control process while Chheda describes an antenna design process that improves reverse link capacity. Because the

teachings of Chung have a different purpose than the teachings of Chheda, there is no motivation to combine Chheda with Chung.

Further, the applicant previously argued that neither Chung nor Chheda teach or suggest estimating a total sector interference based on individual interference contributions from access terminals in the sector. In reply, the examiner asserts that ¶[0060] of Chung describes using a summation method to compute the total sector interference. However, contrary to the examiner's assertions, nothing in Chung ever teaches independently calculating individual interference contributions or using a summation method to compute the total sector interference. Instead, ¶[0060] of Chung simply shows how to calculate the SNR (E_b/I_{oi}) for the i^{th} mobile station. While I_{oi} represents the power spectral density of the thermal noise and interference for the i^{th} mobile station, nothing in Chung teaches or suggests explicitly or independently calculating I_{oi} , nor using that value or its aggregate for any control purpose. Instead, I_{oi} simply occurs in the expression used to define the SNR. As such, nothing in Chung supports the examiner's assertion that Chung calculates or otherwise determines the individual interference contribution of individual mobile stations, as required by claim 1.

Further, even if the examiner insists that Chung does calculate I_{oi} , nothing in Chung teaches or suggests summing the I_{oi} for each mobile station in a sector. The examiner's proffered summation method is nothing more than unsupported speculation. As such, the rejection is improper and must be withdrawn.

Because Chung does not estimate the total sector interference based on the individual interference contributions, Chung also necessarily does not regulate the reverse channel data rates used by the access terminals based on the estimated total sector interference as required by claim 1. The applicant also notes that Chheda does not solve either of these deficiencies. Therefore, for at least these reasons, independent claim 1 and dependent claims 2 – 26 are patentably distinct from the cited art. The applicant respectfully requests reconsideration.

Independent Claim 53

Lastly, the examiner cites a new rejection against independent claim 53. In particular, the examiner asserts that claim 53 is obvious in view of Chheda, Chung, and Bender. Claim 53 claims a base station controller that receives estimates of reverse link loading for a sector from a plurality of radio base stations, and processes the estimates to compute a flow control parameter for one or more of said radio base stations. Claim 53 further specifies that the flow control parameter computed for each radio base station is dependent on an estimate of reverse link loading for a sector associated with at least one other radio base station.

In presenting the rejection, the examiner asserts that Chheda teaches the receive step and that Chheda processes the received reverse link loading estimates. The examiner concedes that Chheda does not teach computing the flow control parameter. For this teaching, the examiner looks to Chung. Further, the examiner concedes that neither Chheda nor Chung teach that “the reverse link estimation method applied to each base station is combined in BSC.” For this teaching, the examiner refers to ¶[0027] of Bender.

First, the applicant notes that the combining method referred to by the examiner is not recited in claim 53. As such, the applicant is uncertain what the examiner is referring to or how it applies to claim 53. For at least this reason, the rejection is improper and must be withdrawn.

Also, contrary to the examiner’s assertions, col. 2, ll. 25 – 42 of Chheda does not teach or suggest receiving reverse link loading estimates for a sector at a base station controller from a plurality of base stations. The cited section in Chheda only describes calculating reverse link capacity. Nothing in Chheda teaches that radio base stations actually calculate loading or send the calculated loading to a base station controller, as required by claim 1.

Further, even if arguendo there is motivation to combine Bender with Chheda or Chung, there is no motivation to combine Chheda with Chung, as discussed above. Therefore, for any

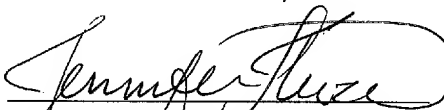
or all of these reasons, independent claim 53 and dependent claims 54 – 56 are patentably distinct from the cited art. The applicant respectfully requests reconsideration.

Conclusion

For the forgoing reasons, it is respectfully urged that the present application is in condition for allowance and notice to such effect is respectfully requested. Should any issues remain, the applicant requests that the examiner call the undersigned so that any such issues may be expeditiously resolved.

Respectfully submitted,

COATS & BENNETT, P.L.L.C.



Jennifer K. Stewart
Registration No.: 53,639

Dated: 6 October 2006

P.O. Box 5
Raleigh, NC 27602
Telephone: (919) 854-1844
Facsimile: (919) 854-2084